

# The My Sust House Games

The My Sust House games are a series of exciting interactive games exploring what sustainability means and how it relates to our homes and communities. It provides a resource for meaningful and effective learning and teaching opportunities across many areas of the Curriculum for Excellence.

The material can be used in many ways, either for individual use or as part of a group activity. As well as providing interesting information, it stimulates discussion, presents problem solving activities and a provides a context for team work and decision making.

**My Sust House** also provides opportunity to enhance learning and teaching through the effective use of **information and communications technology** as well as an opportunity to develop **language skills in discussion and problem solving**.

## Curriculum for Excellence

This online resource links directly with the four capacities implicit in Curriculum for Excellence CfE:

- **As a responsible citizen**, pupils should have a **commitment to participate responsibly in... social life**. By developing an understanding of the effect of different building materials, pupils can discover, through this resource, ways of reducing the impact of the way they live and therefore how they can live more responsibly
- As an **effective contributor**, pupils are expected to apply **critical thinking in new contexts**. This resource gives the opportunity to observe the financial and economic consequences of decisions. New information is provided for pupils to critically analyse and forms a basis for these decisions
- As a **confident individual**, pupils are expected to make **informed decisions**. The skill of using new information to make decisions is developed through these activities
- As a **successful learner**, pupils should be **open to new thinking and ideas**. This resource introduces new concepts that pupils can incorporate with prior knowledge to reach informed decisions.

My Sust House can also form a basis for cross-curricular work, something Curriculum for Excellence encourages. Linking with **experiences** and **outcomes** from several different **curriculum areas** the activities within this resource can be used with individuals, groups or as a whole class.

## Experiences and outcomes related to My Sust House:

- Science (SCN 2-04b, SCN 3-04b, SCN 4-04a and SCN 4-04b)
- Social Studies (SOC 1-08a, SOC 2-08a, SOC 2-08b, SOC 2-09a, SOC 4-08a, SOC 4-09b, SOC 4-10a, SOC 4-10b, SOC 4-10c, SOC 1-11a and SOC 4-12b)
- Technologies (TCH 1-02a, TCH 2-02a, TCH 2-02b TCH 4-02a).

## Skills developed when using My Sust House:

- Discussion and debate
- Critical thinking.



The **Environment game** explores ways to create a more sustainable environment. Subjects covered are: location of a house, saving energy, water, waste. Player receives a printable certificate with their score. Suitable for pupils from 9 years.



As a key programme of Architecture and Design Scotland, Sust. raises awareness of the importance of sustainability in the design of the built environment.

Architecture and Design Scotland (A+DS) is Scotland's champion for excellence in placemaking, architecture and planning and an Executive NDPB of the Scottish Government. A+DS aims to support the creation of places that work, which provide people with real choices and, are ultimately, places where people want to be.

**Sust.**  
Architecture + Design Scotland  
The Lighthouse  
11 Mitchell Lane  
Glasgow G1 3NU

+44 (0)8451 800 642  
info@sust.org  
www.sust.org

## AVAILABILITY AND ACCESS

My Sust House is available at <http://www.mysusthouse.org>

The game is in Flash 7 format and uses animation, sound and video and is designed to load quickly. A text file of the game's onscreen text and a transcript of the video scripts and is available in the teacher's notes section.

## COLOPHON

Design and production: ScreenMedia  
Content development: John Gilbert Architects and Sust.  
Teacher's Notes: Alastair McConnell, Duich McKay

The first edition of My Sust House won a **BAFTA Scotland** award for **Best Interactive Media** in 2006.

The **Town game** is an interactive collection of activities based around the expansion and growth of a fictional town. As participants work through the quizzes, debates and planning exercises, they will learn about the impact of any choices that they make. Suitable for pupils from 12-14 years.



The **Building game** challenges the children to build a sustainable house. Subjects covered are: building materials, insulating materials, power for a house, heating a house. Player receives a printable certificate with their score. Suitable for pupils from 12 years.

# Environment & Building Games

The Environment and Building games are exciting interactive games exploring what sustainability means and how it relates to our homes.

The material can be used in many ways, either for individual use or as part of a group activity. The game activity lasts 25-35 minutes. As well as providing interesting information, it stimulates discussion, presents problem-solving activities and provides a context for teamwork and decision-making.

## My Sust House and Curriculum for Excellence (CfE)

This online resource links directly with the four capacities implicit in CfE:

- As a responsible citizen, pupils should have a commitment to participate responsibly in social life. By developing an understanding of the effect of different building materials, pupils can discover, through this resource, ways of reducing the impact of the way they live and therefore how they can live more responsibly
- As an effective contributor, pupils are expected to apply critical thinking in new contexts. This resource gives the opportunity to observe the financial and economic consequences of decisions. New information is provided for pupils to critically analyse and forms a basis for these decisions
- As a confident individual, pupils are expected to make informed decisions. The skill of using new information to make decisions is developed through these activities
- As a successful learner, pupils should be open to new thinking and ideas. This resource introduces new concepts that pupils can incorporate with prior knowledge to reach informed decisions.

In addition My Sust House can form a basis for cross-curricular work, something Curriculum for Excellence encourages. Linking with experiences and outcomes from several different curriculum areas the activities within this resource can be used with individuals, groups or as a whole class.

## Experiences and Outcomes related to the Environment and Building Games:

- **Science** (SCN 2-04a and SCN 3-04a), SCN 2-04b, SCN 3-04b, SCN 4-04a and SCN 4-04b)
- **Social Studies** (SOC 2-08a, SOC 2-08b, SOC 4-10b and SOC 4-12b)
- **Technologies** (TCH 2-02a and TCH 4-02a)

## How to play

The game is three parts:

The **introduction** movie where two trendy characters explain what sustainability is all about. Explanation of terminology is provided in simple terms. This section can be skipped if the pupils revisit the games later.

The **Environment Game** explores ways to create a more sustainable environment. Subjects covered are: location of a house, saving energy, water, and waste. Player receives a printable certificate with their score. Suitable for pupils from 9 years.

The **Building Game** challenges the children to build a sustainable house. Subjects covered are: building materials, insulating materials, power for a house, heating a house. Player receives a printable certificate with their score. Suitable for pupils from 12 years.

In choosing their materials, students must take both cost and environmental sustainability into account. They have £100,000 to spend and the budget is displayed on screen. If you exceed the budget you must repeat the game The sustainability meter is displayed at all times and varies according to the player's choices. In addition there is an animated globe in the top left corner, which changes appearance according to the current score.

Players can print a certificate with their score at the end of the Building Game.



Environment Game: Improve the sustainability of our environment by changing how we live in our homes.



Building Game: Build a sustainable house within budget.

## The Town Game

The Town Game focuses on the ways in which; **housing, schools, transport, retail** and **energy** could be developed in a more sustainable way. Suitable for pupils up to 14 years.

The focus is a small town in Scotland facing typical pressures of growth. Demand for energy and housing is increasing with consequent pressures on transport, schools and services. Each activity requires interaction and choices from the pupil. The screen animates and the town changes according to choices made:

- **Housing activity:** pupils select areas of the town for new development and make choices about density and layout and their impact on the environment. Each pupil may end up with a different looking town if played individually
- **School quiz:** a multiple choice quiz of ten questions looking at the impact of the school and its grounds on the environment
- **Transport quiz:** a multiple choice quiz of ten questions looking at the impact of transportation choices make on the town looking at commuting, parking, congestions, emissions, cycling and walking
- **Retail activity:** pupils watch a short video debate then make make choices about whether a new supermarket should be allowed to build in the town
- **Energy activity:** pupils watch a short video debate then make choices about whether to build a nuclear power station or not.

The following information should make it easier to link this resource to schemes of work, particularly in relation to CfE:

- All teachers now have a responsibility for enhancing literacy, numeracy and health and well-being
- The energy and retail debates in the town game encourage participants to assess the merits of different points of view; making decisions based on their understanding of these and helping them to develop literacy skills
- Assessing the environmental and economic cost of certain developments provides a basis for numeracy work
- Discussing the health and environmental risks of certain building materials raises their awareness of these issues and gives pupils a platform to bring about positive changes to their school and community (HWB 3-13a).

### Experiences and Outcomes related to The Town Game:

The town game relates to the following specific experiences and outcomes, but interdisciplinary possibilities should also be considered.:

- In **Science**; energy sources and sustainability (SCN 2-04b, SCN 3-04b, SCN 4-04a and SCN 4-04b) are directly related to the debates on energy and transport use
- In **Social Studies**; living more sustainably (SOC 1-08a, SOC 2-08a, SOC 4-08a), implications of developments (SOC 2-08b), transport (SOC 2-09a, SOC 4-09b), impact of human activity (SOC 4-10a, SOC 4-10b, SOC 4-10c) and housing needs (SOC 1-11a) are all covered
- In **Technology**; developments in society (TCH 1-02a, TCH 2-02a, TCH 2-02b TCH 4-02a) and their impact on the environment are covered.

### General Instructions

Listen to the video introduction, and then click the button to begin. The game has five different activities to try:

- housing activity
- school quiz
- transport quiz
- retail activity
- energy activity.

These can be attempted by clicking on the appropriate part of the town map. They can be completed in any order and each activity gives feedback and an individual score. Clicking the button on the top left of the screen shows the current progress. When all activities have been completed a final sustainability score is given. Further details on each activity follow this section.



**Build Housing Activity:** There's not enough houses to cope with all the new people moving to MySust Town – new housing will have to be built. Can this be done in a sustainable way?



**Schools Quiz:** The ten multiple-choice questions in this activity help to raise awareness of the environmental impact of the school.



**Transport Quiz:** More people in MySustTown mean more personal and public transportation. The challenge is to grow the infrastructure and making it sustainable.



**Retail Activity:** MySust Town will need more shops and more power to service the expanded population. There is a lively debate on different ways to achieve this. Watch, listen and decide.



**Energy Activity:** Develop renewable energy or build nuclear. Watch the debates and vote.

### **Possible class activities**

- Individuals/pairs work through each of the activities, trying to achieve the highest sustainability score. Class discussion at end about how this was achieved in each activity
- Each group tries a different activity and then feeds back to the rest of the class anything they have found out
- Whole class uses information from debate activities to discuss the issues and decide as a class how the town should develop. This could be done through role-play with pupils taking on the roles of the different characters
- If access to computers is limited, this could be set as a homework task with subsequent discussions/feedback during class time.

## Town Game: Housing Activity Notes

There are not enough houses to cope with all the new people moving to MySust Town – new housing will have to be built around the existing town as there's no space left inside the town's current boundaries. Can this be done in a sustainable way?

This activity raises issues such as: greenbelts, housing density, street patterns, and sustainable building and planning methods.

### HOW TO PLAY

Building housing involves a number of steps in order to provide enough housing for your population target.

There are various options available, but all of these have environmental consequences. This game helps the player to see how decision-making always has consequences:

1. Click on a piece of land that you might want to develop
2. After reading the information about the land, click if you want to proceed
3. Choose, low, medium or high-density housing. Information is provided to help with this choice. 4000 new homes are required; this could be accommodated on one site of high-density housing or several sites of lower density housing
4. Choose from several different layouts. Information is provided to help with this choice
5. Choose from several different housing qualities. Information is provided to help with this choice.

Throughout this activity, you can click for more information and click back to change something you have previously chosen.

### LESSON SUGGESTIONS

As there are a number of choices to be made in the planning exercise, this would work best as an individual or paired activity. If the number of computers is limited this could be completed as a whole class, voting on each option or as a homework task, printing the results as evidence of completion.

This activity could be used as part of a study of housing types or street patterns. Further research into the ways of reducing the impact of house building would be beneficial.

### BACKGROUND ISSUES

#### Building new houses

In this activity we look at the impact of building a lot of houses and creating new neighbourhoods (or districts) to house the expanding population of the town.

The land used will change dramatically and be no longer be used for farming, industry, distribution or recreation. The construction will use a lot of resources so we don't want these to be wasted. If the new areas are to be sustainable then they will have to be adaptable to different needs and not use up any more land and other natural resources than is necessary.

#### What is a sustainable town?

A sustainable town is one that has the resources: people, energy, food to sustain it over a long period while not damaging the environment: the land, water, air, that we depend upon for life. This means 'treading lightly' as we change the world around us, so that it will sustain us and future generations.

#### What is a sustainable neighbourhood?

A sustainable neighbourhood is one that its residents can flourish in, take pride in and care for. The houses keep people warm and dry and the spaces around them have space for movement and recreation. People's needs change as families grow so the homes themselves, and the types of dwelling such as flats or houses, will need to be adaptable for future needs. The less energy used to heat the houses and power the appliances inside them, the better people will be able to afford to live in them and this contributes to the sustainability of the place.

#### The environmental impact of new housing

All building has an impact on the environment: as the human population grows on the surface of the earth we reduce the amount of natural habitat. Building over greenfield land means reducing the space for plants and animals.

#### Why build on greenfield land?

It would make sense to build on land previously built upon – brown-field land – but in this case there is very little available. The town must expand into the surrounding countryside.



**Build Housing Activity:** There are not enough houses to cope with all the new people moving to MySust Town – new housing will have to be built. Can this be done in a sustainable way?

**CO<sub>2</sub> emissions**

Human activity will increase the carbon emissions of the town. We should look at how the layout, density, amenities of a neighbourhood can affect this.

**Water & Waste**

New neighbourhoods will affect the existing drainage system. Where will the rainwater running off the roofs and roads go? Is there enough sources of fresh clean drinking water? Can we have a sustainable urban drainage system? Where will the rubbish go? How much can be recycled in the neighbourhood to minimise the impact elsewhere?

**Bio-diversity: plants and animals**

There are ways of encouraging bio-diversity in the spaces left between houses and roads. We can share where we live with plants and animals. This can be as simple as bird-box or as complex as a green corridor between the houses to the country which allows plants and animals to migrate.

## Town Game: Transport Quiz Notes

More people in MySustTown means more personal and public transportation. The challenge is to grow the infrastructure without damaging the environment. .

This activity raises issues such as: commuting, congestion charges, high occupancy lanes and public transport.

### HOW TO PLAY

The ten multiple-choice questions in this activity help to raise awareness of the impact of transport methods and how this can be reduced.

Every time a correct answer is chosen, the picture of the street improves.

### LESSON SUGGESTIONS

This activity could be used with a class in the following ways:

- Individuals/pairs work through the questions, making notes on ways of reducing traffic. These can then be summarised as a whole class activity
- This could be the starting point for a study of travel to school and ways that the impact of transport has been reduced in the local area.

### BACKGROUND ISSUES

#### Commuting and Parking

More than two thirds of commuter journeys were by car in 2007 in Scotland. More than half of all children still walk to school, however – 22% travelled by car. Car journeys create emissions and noise pollution. Most car engines use fossil fuels sources that have an uncertain future. This leads us to look for sustainable alternatives to our current commuting methods.

Many people question our dependence on fossil fuel engines for transportation. Responses vary from using alternatives like cycling and walking to seeking alternative sources of fuel. Public transport systems, like buses and trains, are more fuel-efficient than cars and have less total emissions. Their drawbacks are the lack of flexibility and convenience we have become used to by using cars, as well as the large investment needed for new, fixed routes like trams and train lines.

When we are not commuting, our cars have to be parked somewhere. Increasingly large amounts of our towns are allocated for parking and all new housing has space allocated for parking. When car parks are empty the space cannot be used for anything else (apart from the occasional car boot sale!)

#### Congestion and emissions

By 2006, there was more than one vehicle for every two people in Scotland. This has resulted in congestion as everyone uses the same roads in their journey to and from work and school. Some of the ideas for reducing congestion caused by private car use include car sharing and staggering commuting journeys.

The main method advocated for reducing congestion, however, is encouraging people to use alternatives to cars like public transport, cycling and walking. All of these alternatives use less space and have less emissions. Sometimes people are discouraged from using roads at particular times and places by road pricing – charges for actually using the road.

#### Cycling and walking

Cycling and walking are accepted as healthy, efficient and cheap ways to travel, yet only 14% of Scottish commuters travelled this way in 2007. Many people in other countries have little choice about this because of the cost of cars and lack of public transport.

In Scotland, the issues are what stops people cycling and walking? These include: the weather, fear of pollution from sharing roads with cars, fear of accidents from collisions with cars and buses and the convenience of private cars. Measures like cycle lanes and “walking buses” for schoolchildren are responses to this.

MySustTown will have to be designed carefully to create a place people are happy to walk and cycle in.



**Transport Quiz:** More people in MySustTown means more personal and public transportation. The challenge is to grow the infrastructure and making it sustainable.

## Town Game: School Quiz Notes

MySustTown has new high school built on the edge of town. The previous school was a series of extensions to a school started in the 19th century. The site was considered too small for the increase in the number of pupils. However the new school was built very quickly with little regard to sustainability. There are ways of reducing the amount of energy used by the school by adapting and modifying the existing building.

This activity raises issues such as: energy use, food waste, recycling, waste disposal, and water usage – all related to schools.

### HOW TO PLAY

The ten multiple-choice questions in this activity help to raise awareness of the environmental impact of the school building and grounds.

Every time a correct answer is chosen, the picture of the school improves.

### LESSON SUGGESTIONS

This activity could be used with a class in the following ways:

- Individuals/pairs work through the questions, making notes on ways of reducing the environmental impact of their school
- This could be the starting point for an audit of the school's environmental impact, introducing the main issues.

### BACKGROUND ISSUES

#### Energy

It takes a lot of energy to bring pupils, teachers to the schools and all the supplies the school needs to function.

The school is heated by gas boilers. Gas is a fossil fuel and there are limited resources locally. Gas has been extracted from the seabed in the North Sea since the 1960s but is now running out. We now have to import this from further and further away. Nearly 60% of the energy in a school is used for heating.

Heat is also generated by the activities of the people who use the building and is lost to the atmosphere through poor insulation of the building fabric (walls, floors, roof, windows). This lost heat means that the building uses more energy, adding to global warming because of the CO<sub>2</sub> released when fuel is burned.

#### Renewable energy

One approach to improving the school's energy performance is to generate energy on the school grounds using renewable sources like wind and the sun. Every site has its own opportunities and costs. If you were to install a wind turbine, you would you have to weigh up whether or not the amount of energy generated will justify the cost of buying, installing and maintaining the windmill. When will you judge the investment worthwhile, after five years, ten years, twenty years?

#### Lighting

Good lighting is essential to education. Natural light is also essential to our health. We are always going to need some artificial light in our school but we can reduce the amount we use with energy-efficient light bulbs and careful design that uses as much natural light as possible.

#### Reducing waste

Global warming has made us examine every aspect of human activity and waste has become a pressing issue. It is clear that not making more than we need, using it carefully and recycling can reduce our negative impact on the planet.

A school always has scope to reduce waste. How can we reduce, re-use, and/or recycle the energy and materials used in the school?

#### A healthy school

The materials used in constructing and furnishing a school can also affect our health. Examples of this are paints, glues and or other finishes used for walls or furniture. What are the long-term health effects of the materials used in your school?



**Schools Quiz:** The ten multiple-choice questions in this activity help to raise awareness of the environmental impact of the school's building and grounds.

## Town Game: Retail Activity Notes

My Sust Town needs more shops for its expanding population. New people in the town mean different tastes and expectations. There is a lively debate in the town about where these will be built. The council has received a planning application from Xco to build a new supermarket. Some people in the town oppose this new development. The debate has focused on two main choices:

1. Allow the construction of a new supermarket and retail park with new access roads
2. Refuse the application and build a new arcade off the new high street and invest in streetscaping of the town centre.

The debate revolves around economic, environmental and social arguments for and against. This activity raises issues such as: brownfield development, buying locally, carbon-offsetting, economies of scale, food miles, greenbelts and reducing waste.

### HOW TO PLAY

Listen to the video introduction, and then click the button to begin. There are three different viewpoints shown on each side of the debate. Click to watch each video in turn and then decide which option you wish to vote for.

MySust Town will need more shops and more power to service the expanded population. There is a lively debate on different ways to achieve this. Watch, listen and decide.

### LESSON SUGGESTIONS

This activity could be used with a class in the following ways:

- As a whole class, watch each video in turn, discuss each of the issues as they come up and then vote to decide which option to go for
- Split the class into six groups. Each group takes on the viewpoint from one of the videos. This could then form the basis for a mock debate within the classroom with pupils taking on the roles of the talking heads
- This activity could form the basis for further study on the impact of out of town retail development or be the culmination of previous work on this issue.

### BACKGROUND ISSUES

#### Economic

The main issue is investment and where it comes from. Investment means the state, private enterprise or non-profit organisation putting financial, physical and human resources into a plan that will give a greater return. There needs to be agreement in the town on where investment is made as the opportunity may not be repeated.

In the case of the supermarket, large resources are being offered to the town by a public company from outside the town – external investment. Often local and national government welcomes this approach and offer incentives, such as cheap land or tax rebates, to ensure that investment comes to their area. The government expects that jobs provided and goods and services bought locally by the supermarket will have a beneficial effect on the local economy. The perceived risk by government is reduced, as the supermarket is prepared to carry all the financial risk and is an experienced provider of this sort of retail capacity. On the negative side the fact that the company is ultimately investing on behalf of shareholders, who are scattered across the world and that's where the real profits go.

Local investment in new retail facilities is inevitably more difficult than adopting a global approach. The people involved do not have the supermarket's experience or expertise in planning and development of ideas. Thus investment may be more fragmented and harder to organise and those that may have to support it in government may be cynical about the community's ability to raise the money needed. The perceived risk is higher for the government and as a result the outcome of the town centre initiative is less predictable. However the return may be higher as profits are retained in the town, dispersed amongst more people and with a greater likelihood of being re-invested in MySustTown.

#### Environmental

A new supermarket will have a considerable impact on the environment. Although the construction materials are light and cheap, the large building will use a lot of energy to regulate the temperature of the food and atmosphere. However, it is possible that the building could use less energy than all the shops in the town with their old inefficient systems currently use.



**Retail Activity:** MySust Town needs more shops and more power to service the expanded population. There is a lively debate on different ways to achieve this. Watch, listen and decide.

A supermarket takes up a lot of space for the building, car parks and access roads and this will be built on land currently producing food for the local community in a market garden. Xco are promising to use renewable energy in their supermarket but will this offset the huge amounts of energy used by the centralised distribution system used by Xco for example? What will be the food miles for eggs supplied by Xco compared with local farm eggs available in the local butcher's shop?

A town centre development has the opportunity to study local conditions and to design and build a low impact energy-efficient building. A proposal to use an existing disused factory means that a building will be regenerated and put to a new use rather than being demolished.

Many of the older shops in the town will not be energy efficient. They will be draughty and have older inefficient heating systems. It may require considerable investment to make them more energy efficient and sustainable.

### **Social**

The social benefits of supermarkets are the source of fierce debate. Since they have relative freedom to shape and refine the entire experience of shopping they are perceived as being more responsive to consumer needs and wants. This is often because they do not have to consult widely in order to implement changes. If change is seen as beneficial to the organisation as a whole, then they usually just go ahead. Thus perceived benefits like free parking, low prices, flexible but regular employment for staff, long opening hours etc. are popular and seen as responsive to modern life but they can impact both positively and negatively on family life.

The energy Xco will put into shaping our perception of the brand and its place in our life can mean that Xco can be identified with progress, sophistication and choice.

Set against this is the loss of control of the place we shop to a private organisation. (The rules and customs of the shops in a town were historically part of the town's original charters and definition.) Many people contest that we really have a choice with supermarkets. They assert that the goods are very similar and that choice is based on the needs of the supermarket, not consumers. The supermarket will need people to work unsocial hours which can have a bad effect on family life.

The social benefits of an expansion of the town centre are more subtle but are currently a 'hot topic'. Free parking is unlikely to be available and the initiative would need the support of improved public transport. Getting multiple traders to open all night is unlikely to work. However the chance to shop and meet in a varied, historical, human scale space like the old town centre has many attractions, sometimes to visitors.

The development of new town centre facilities could be seen as just the challenge the town needs, forcing it to learn new skills and become more self-sufficient. However, change dependent on democracy and consensus is going to be a much slower process than from a centralised private company.

Against this is the belief that the shock of the arrival of the new supermarket will force the town centre's traditional retailers to adapt or die. Many will close and some would say that if change was going to occur it would have happened by now.

## Town Game: Energy Activity Notes

MySust Town will need more energy for its expanding population. Energy is needed to heat and light houses shops, schools and offices. The existing source, a local coal fired power station, is polluting and has high carbon emissions. It is inefficient and the coal, which once came from a nearby mine, now has to be imported from Europe. An alternative is being sought. The proposal is:

1. Build a new nuclear power station to meet the whole area's power needs
2. Develop sources of renewable energy and increase energy efficiency.

The arguments for and against nuclear power, as well as for and against renewable energy, focus on economic, environmental and social issues.

This activity raises issues such as: climate change, energy cost, efficiency and security, multiplier effect, nuclear waste and renewable energy.

### HOW TO PLAY

Listen to the video introduction, and then click the button to begin. There are three different viewpoints shown on each side of the debate. Click to watch each video in turn and then decide which option you wish to vote for.

### LESSON SUGGESTIONS

This activity could be used with a class in the following ways:

- As a whole class, watch each video in turn, discuss each of the issues as they come up and then vote to decide which option to go for
- Split the class into six groups. Each group takes on the viewpoint from one of the videos. This could then form the basis for a mock debate within the classroom
- This activity could form the basis for further study on energy sources or be the culmination of previous work on this issue.

### BACKGROUND ISSUES

#### Economic

Nuclear power is very expensive to develop. However, once built, the electricity is quite cheap and the stations will last for decades. Because of the expense, building nuclear power stations is a strategic decision usually made by central government.

Renewable energy is less expensive to install and develop but far more complex to manage because of the multiple sites, maintenance and skills needed. The amount of energy generated is far less predictable therefore energy-intensive developments like mines and factories are more difficult to plan. The economic benefits are small-scale and spread around the population.

#### Environmental

If all goes well, nuclear power can be seen as beneficial to the environment because the generating stations have very low emissions. Objections centre round the consequences of a nuclear accident where high levels of dangerous radiation escape from a nuclear power station. Many argue that the risk of another accident like those Chernobyl in the Ukraine in 1986 or a natural disaster like at Fukushima in Japan in 2010 means that we should not build nuclear stations at all. Set against this is a very good safety record for the industry as a whole. Some argue that the expansion of nuclear power is one of the best ways to lower carbon emissions from human activity.

The environmental benefits of renewable energy are complex. Humans have always used available energy from the natural resources around us – wind, water, sun and earth. We now have sophisticated ways to generate heat and electricity from our environment but they rarely generate the amount we have become used to over the past fifty years.

Others argue that the multiple sources of renewable energy is its strength: we do not put all our eggs in one basket.

We cannot guarantee the environmental conditions e.g. that the wind will always blow. Renewable energy all require investment in a variety of methods e.g. windmills and solar panels.

Large-scale renewable energy e.g. wind farms have a much bigger environmental impact than small-scale.



**Energy Activity:** Develop renewable energy or build nuclear. Watch the debates and vote.

**Social**

Different countries have very different attitudes to nuclear power, mostly stemming initial enthusiasm in the 1950s which turned into doubts about safety and security. Some countries, like the UK, stopped all development of new power stations. Some are completely opposed (e.g. Norway) and some, like France have, continued to develop nuclear power until it became the largest source of electrical power (39% in 2004).

A nuclear power station will have far less pollutants than generation based on fossil fuels like coal.

Renewable energy is likely to create jobs, however, the amount of jobs and how long they would last is not as predictable as the people and skills needed to build and run a nuclear power station.

The people of MySustTown are unlikely to have much control over the location or management of a nuclear power station. They would have much more of a say in how renewable energy is created and located in MySustTown.

We currently consume more than we can feasibly generate from renewable energy. The implication of a commitment to using only renewable energy is that we would have to change the way we live – by consuming less and conserving more through individual and collective effort. Is the community of MySustTown ready for this?

At the moment, the amount the amount of electricity we use is a choice, according to how much we can afford. Could MySustTown adjust to the rationing of electricity and reach a consensus on its use?

A clean environment with clean air is going to make the town more attractive to live in. Those advocating nuclear power say that because it has low emissions it is very clean. Opponents say that the threat of an accident will scare people away. Those in favour of renewables say that because it relies on renewable sources like the sun and wind it will reduce pollution. Opponents say that the proliferation of devices like windmills clutter the environment and make it less attractive.